1. (Once Amended) A method for communicating a data stream, the method comprising the steps of,

generating a sequence of data symbols from the data stream,

precoding the sequence of data symbols into a sequence of precoded data symbols,

modulating the sequence of precoded data symbols into a continuous phase modulated signal,

transmitting the continuous phase modulated signal,

receiving the continuous phase modulated signal, and

filtering the continuous phase modulated signal into a sequence of filtered signals having absolute phase for indicating the sequence of data symbols.

2. (Once Amended) The method of claim 1 further comprising the steps of ,

sampling the sequence of filtered signals into a sequence of sampled signals, and

demodulating the sequence of sampled signals into an estimated data stream.

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3. (Once Amended) The method of claim 1 wherein,

the generating step comprises the steps of receiving the data stream of data bits, formatting the data stream into the sequence of formatted data pulses as a sequence of data symbols within an M-ary symbol set,

the modulating step comprises the steps of Gaussian filtering and frequency modulating for generating the continuous phase modulated signal, the Gaussian filter step filters the precoded sequence of data symbols into pulse responses continuously accumulated over a finite memory time as a filter response, the Gaussian filtering step is defined by a bandwidth time product inversely defining the finite memory time, the frequency modulating step frequency modulates a carrier reference by the filter response by a modulation index for converting the filter response into the continuous phase modulated signal,

the continuous phase modulated signal is up converted from baseband during the transmitting step and is down converted to baseband during the receiving step using a local carrier, and

the filtering step is a matched filtering step for matched filtering of the received continuous phase modulated signal into the filtered signal, the matched filtering is matched by pulse amplitude modulation representation to the Gaussian filtering step, the filtered signal has an absolute phase at a periodic sampling time for indicating the sequence of data symbols.

4.(Twice Amended) The method of claim 3 wherein,

the modulation index is equal to a fraction selected from a group consisting of 1/M and (1-1/M) fractions for the M-ary symbol set where $M=2^k$ and k is an integer.

5. (Twice Amended) A method for communicating a data stream, the method comprising the steps of,

generating a sequence of data symbols from the data stream by formatting the data stream into the sequence of formatted data pulses as a sequence of data symbols within a 2-ary symbol set,

precoding the sequence of data symbols into a sequence of precoded data symbols,

Gaussian filtering the precoded sequence of data symbols into pulse responses continuously accumulated over a finite memory time as a filter response, the Gaussian filtering is defined by a bandwidth time product inversely defining the finite memory time,

frequency modulating a carrier reference by the filter response by a modulation index for converting the filter response into a continuous phase modulated signal, and

matched filtering the received continuos phase modulation signal into a filtered signal, the matched filtering is matched by pulse amplitude modulation representation to the Gaussian filtering, the filtered signal has an absolute phase at a periodic sampling time for indicating the sequence of data symbols.

6. (Amended) The method of claim 5, wherein,

the sequence of data symbols has a data symbol d_n at a current symbol time n where n is an integer and has a data symbol d_{n-1} at an immediate previous symbol time n-1 for precoding the data sequence into the sequence precoded data symbols having a precoded data symbol α_n at the current symbol time, the precoding step is defined by $\alpha_n = [\ d_n - d_{n-1} + 1\ ]_{mod4}$.

7.(Amended) The method of claim 5, wherein,

the sequence of data symbols has a data symbol d_n at a current symbol time n where n is an integer and has a data symbol d_{n-1} at an immediate previous symbol time n-1 for precoding the data sequence into the sequence of precoded data symbols having a precoded data symbol α_n at the current symbol time for even symbol times and for odd symbol times, the precoding step is defined by $\alpha_n = [\ d_n - d_{n-1} + 1\ ]_{mod4}$ for even symbol times and $\alpha_n = -[\ d_n - d_{n-1} + 1\ ]_{mod4}$ for odd symbol times.

8. (Original) The method of claim 5 wherein the modulation index is 1/2.

9. (Original) The method of claim 5 wherein the bandwidth time product is 1/3.

10. (Original) The method of claim 5 wherein the filtering step is a matched filtering step for applying a principal Laurent function to the baseband signal so that the filtered signal comprises a principal Laurent component.

11. (Twice Amended) A method for communicating a data stream, the method comprising the steps of,

generating a sequence of data symbols from the data stream by formatting the data stream into the sequence of formatted data pulses as a sequence of data symbols within a 4-ary symbol set,

precoding the sequence of data symbols into a sequence of precoded data symbols,

Gaussian filtering the precoded sequence of data symbols into pulse responses continuously accumulated over a finite memory time as a filter response, the Gaussian filtering is defined by a bandwidth time product inversely defining the finite memory time,

frequency modulating a carrier reference by the filter response by a modulation index for converting the filter response into a continuous phase modulated signal,

matched filtering the continuous phase modulated signal into a filtered signal, the matched filtering is matched by pulse amplitude modulation representation to the Gaussian filtering, the filtered signal has an absolute phase at a periodic sampling time for indicating the sequence of data symbols, and

demodulating the sequence of data symbols into an estimate of the data steam.

12. (Original The method of claim 11, wherein,

the sequence of data symbols has a data symbol d_n at a current symbol time n and has a data symbol d_{n-1} at an immediate previous symbol time n-1 for precoding the data sequence into the sequence precoded data symbols having a precoded data symbol α_n at the current symbol time, the precoding step is defined by $\alpha_n = [\ d_n - d_{n-1} + 1\ ]_{mod8}$.

13. (Original) The method of claim 12 wherein the precoded data symbol α_n is defined by the 4-ary symbol set of +1, -1, +3 and -3.

14. (Original) The method of claim 12 wherein the modulation index is 1/4.

15. (Original) The method of claim 11, wherein,

the sequence of data symbols has a data symbol d_n at a current symbol time n and has a data symbol d_{n-1} at an immediate previous symbol time n-1 for precoding the data sequence into the sequence precoded data symbols having a precoded data symbol α_n at the current symbol time, the precoding step is defined by $\alpha_n = [\ d_n - d_{n-1} + 3\ ]_{mod8}$.

16. (Original) The method of claim 15 wherein the precoded data symbol α_n is defined by the 4-ary symbol set of +1, -1, +3 and -3.

17. (Original The method of claim 15 wherein the modulation index is 1/4.

18. (Amended) The method of claim 11 wherein the filtering step is a matched filtering step for applying a principal Laurent function, a third Laurent function and a twelfth Laurent function to the baseband signal so that the filtered signal comprises a principal Laurent component, a third Laurent component and a twelfth Laurent component.

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